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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/734,236

12/15/2003

Roger R. Lesieur

C-2460 DIV

8626

7590

07/24/2006

William W. Jones
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EXAMINER

HANDAL, KAITY V

ART UNIT

PAPER NUMBER

1764

DATE MAILED: 07/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/734,236

Applicant(s)

LESIEUR ET AL.

Examiner

Kaity Handal

Art Unit

1764

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) ____ is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 6-10 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>2/14/2005</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Specification

Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;
- (2) if an article, its method of making;
- (3) if a chemical compound, its identity and use;
- (4) if a mixture, its ingredients;
- (5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

Claims Analysis

1. It is noted that claims 6-10 recite a "system" which is not a statutory category of invention. It has been determined that the claims are directed to an apparatus and the appropriate principles for interpreting claims for that particular category of invention have been applied.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 6-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Setzer (US 3,485,746) and further in view of Hydrocarbon Chemistry (George A Olah, 1995).

With respect to claims 6-10, Setzer teaches an apparatus (figure 1) for desulfurizing a fuel stream (illustrated) so as to convert the gasoline fuel stream into a low sulfur content fuel (col. 4, lines 59-73), which low sulfur content fuel is suitable for use in a fuel processing section in a fuel cell power plant (col. 1, lines 20-25), said system comprising: a) a nickel reactant desulfurization station/reactant adsorbent bed which is operative to convert sulfur contained in organic sulfur compounds contained in the fuel stream (col. 4, lines 59-73); b) means/pump (as illustrated) for introducing a gasoline or diesel fuel stream into said nickel reactant desulfurization station/reactant adsorbent bed, and c) a supply/(from reformer) of a hydrogen (H₂) additive and means/pipeline (as illustrated) connecting said (H₂) additive supply/reformer to said fuel stream (as illustrated).

said (H₂) additive being present in said fuel stream in an amount which is effective to provide an effluent fuel stream at an exit end of said nickel reactant station which effluent fuel stream contains no more than about 0.05 ppm sulfur.

Regarding limitations recited in claim 6 which are directed to a manner of operating disclosed device, neither the manner of operating a disclosed device nor material or article worked upon further limit an apparatus claim. Said limitations do not differentiate apparatus claims from prior art. See MPEP § 2114 and 2115. Further, process limitations do not have patentable weight in an apparatus claim. See *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969) that states "Expressions relating the apparatus to contents thereof and to an intended operation are of no significance in determining patentability of the apparatus claim."

The reference does not disclose the conversion of organic sulfur compounds to nickel sulfide. The reference does not disclose the addition of H₂ in an amount which is effective to provide an effluent fuel stream at an exit end of said nickel reactant station which effluent fuel stream contains no more than about 0.05 ppm sulfur. The reference does not disclose wherein the H₂ additive is derived from a container of H₂ in the fuel processing section of the fuel cell power plant, from recycled reformed fuel gas from a selective oxidizer in the fuel processing section of the fuel cell power plant, or from an electrolysis cell in the fuel processing section of the fuel cell power plant which converts water to H₂ and O₂. The Olah reference discloses the production of hydrogen using fuel cells (page 19, lines 1-15).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the process of Setzer to utilize the fuel cells of Olah and it would have been obvious to utilize a system wherein the H₂ additive is derived from a container of H₂ in the fuel processing section of the fuel cell power plant, from

recycled reformed fuel gas from a selective oxidizer in the fuel processing section of the fuel cell power plant, or from an electrolysis cell in the fuel processing section of the fuel cell power plant which converts water to H₂ and O₂ because the Setzer reference generally discloses the use of hydrogen additive in a desulfurization process and the source of the hydrogen production is not material to the success of the process. It would have been obvious to one having ordinary skill in the art at the time the invention was made to convert organic sulfur compounds to nickel sulfide because nickel sulfide is a natural product of a reaction between nickel and organic sulfur compounds.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a system wherein the addition of H₂ in an amount which is effective to suppress carbon deposition on the nickel reactant and provide an effluent fuel stream at an exit end of said nickel reactant station which effluent fuel stream contains no more than about 0.05 ppm sulfur because the Setzer reference discloses that a desulfurization process run with no water or hydrogen resulted in coke formation and therefore hydrogen could be expected to be effective in reducing coke formation. Furthermore, the reference discloses that the use of steam prevents coke formation and H₂ is a component of steam. See Column 3, lines 33-43.

Conclusion

Art Unit: 1764

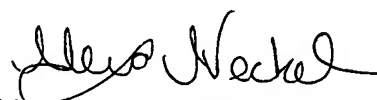
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kaity Handal whose telephone number is (571) 272-8520. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KH 

7/12/2006


ALEXA DOROSHENK NECKEL
PRIMARY EXAMINER